

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (previously presented) A method for separating bitumen material from mineral particulates in grains of a hydrocarbonaceous ore, comprising the steps of:

a) mixing said ore with water to form an aqueous slurry of said grains;

b) tempering said slurry to a temperature between about 20°C and 150°C;

c) shearing said slurry by a rotary mixer apparatus for at least one minute prior to carrying out step d);

d) adding an inorganic peroxide to said slurry in an amount between 0.05 weight percent and about 10.0 weight percent relative to the weight of water in said slurry, said percents being expressed as equivalent weights of hydrogen peroxide;

e) forming oxygen bubbles between said bitumen material and said mineral particulates within said grains by decomposing a portion of said inorganic peroxide therein; and

f) separating said bitumen material from said mineral particulates.

2. (previously presented) A method in accordance with Claim 1 comprising the further steps of:

a) buoying said separated bitumen material upwards by said formed oxygen bubbles in a first separation tank to form a bitumen-rich froth upon a primary water phase thereof containing said mineral particulates; and

b) recovering said bitumen-rich froth from said primary water phase.

3. (original) A method in accordance with Claim 2 comprising the further steps of:

a) settling said mineral particulates in said primary water phase; and

5. b) removing said settled mineral particulates from said primary water phase.

4. (preveiously presented) A method in accordance with Claim 3 comprising the further steps of:

10 a) adding water to said removed mineral particulates to form a second slurry;

b) agitating said second slurry to separate entrained second bitumen material from said mineral particulates;

c) adding an inorganic peroxide to said second slurry;

15 d) decomposing a portion of said inorganic peroxide to form second oxygen bubbles attached to said second bitumen material;

e) buoying said separated second bitumen material upwards in said slurry by said attached second oxygen bubbles to form a bitumen-rich froth upon a second water phase thereof containing
20 said mineral particulates; and

f) recovering said separated second bitumen material from said second water phase.

5. (cancelled).

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6. (previously presented) A method in accordance with Claim 4 wherein said water is drawn at least in part from said primary water phase in said first separation tank.

30 7. (original) A method in accordance with Claim 6 comprising the further steps of:

a) settling said mineral particulates in said secondary water phase; and

b) removing said settled mineral particulates from said
35 secondary water phase.

8. (previously presented) A method in accordance with Claim 2 comprising the further steps of:

a) adding water to said bitumen-rich froth; and

b) adding an inorganic peroxide to said bitumen-rich froth to cause additional separation of said froth into a bitumen layer, a water layer, and a mineral particulates layer.

9. (original) A method in accordance with Claim 8 further comprising the step of supplying water from said water layer to said ore-mixing step.

10. (previously presented) A method in accordance with Claim 1 wherein said inorganic peroxide is selected from the group consisting of hydrogen peroxide and sodium peroxide.

11. (original) A method in accordance with Claim 1 wherein said temperature is about 80°C.

12. (original) A method in accordance with Claim 1 wherein said shearing is carried out at a shear rate generated by an average slurry velocity of at least one meter per second.

13. (original) A method in accordance with Claim 12 wherein said shear rate is generated by an average slurry velocity of between two and five meters per second.

14. (original) A method in accordance with Claim 1 wherein said shearing step is carried out for at least one minute before said step of adding peroxide.

15. (original) A method in accordance with Claim 1 wherein said shearing step is carried out for between about 8 minutes and about 16 minutes before said step of adding peroxide.

16. (original) A method in accordance with Claim 1 wherein said shearing of said slurry is continued after said step of adding peroxide.

5 17. (original) A method in accordance with Claim 1 wherein at least a portion of said method is carried out at a gauge pressure of about 1 atmosphere.

10 18. (original) A method in accordance with Claim 1 wherein at least a portion of said method is carried out at a gauge pressure of between about 1 atmosphere and about 5 atmospheres.

15 19. (previously presented) A method in accordance with Claim 2 further comprising the step of adding a cutter stock to said bitumen as a part of said recovering step.

20 20. (previously presented) A method in accordance with Claim 2 wherein said recovering step includes a method selected from the group consisting of gravity flotation, air flotation, settling, decanting, filtration, centrifugation, and combinations thereof.

25 21. (previously presented) A method in accordance with Claim 20 further comprising the step of recycling at least a portion of said water from said primary water phase into said mixing step to form said slurry.

30 22. (previously presented) A method in accordance with Claim 21 wherein said mineral particulates separated from said bitumen material is employed as a filter for said water being recycled into said mixing step.

23. (cancelled)

24. (original) A method in accordance with Claim 1 further comprising the step of adjusting the weight ratio of water to ore to between about 1:4 and about 2:1 during said mixing step.

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25. (original) A method in accordance with Claim 1 wherein said ore is selected from the group consisting of tar sands, oil sands, oil shales, and oil sandstones.

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26. (cancelled).

27. (previously presented) A method in accordance with Claim 1 wherein said mineral particulates includes quartz sand.

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28. (original) A method in accordance with Claim 1 wherein said method is carried out in a process type selected from the group consisting of continuous, semi-continuous, batch, and combinations thereof.

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29. (original) A method in accordance with Claim 1 further comprising the step of treating said ore prior to said mixing step.

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30. (original) A method in accordance with Claim 29 wherein said treating is selected from the group consisting of sieving, sorting, crushing, grinding, and combinations thereof.

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31. (original) A method in accordance with Claim 29 wherein said treating is carried out with the assistance of a rotary trommel screen.

32. (original) A method in accordance with Claim 1 further comprising the step of collecting gaseous hydrocarbons generated in said method.

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33. (original) A method in accordance with Claim 1 wherein said water is selected from the group consisting of fresh water, sea water, salt water, tailing pond water, recycled process water, and combinations thereof.

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34-62. (cancelled)